

Uncertainty estimate for z pT measurement

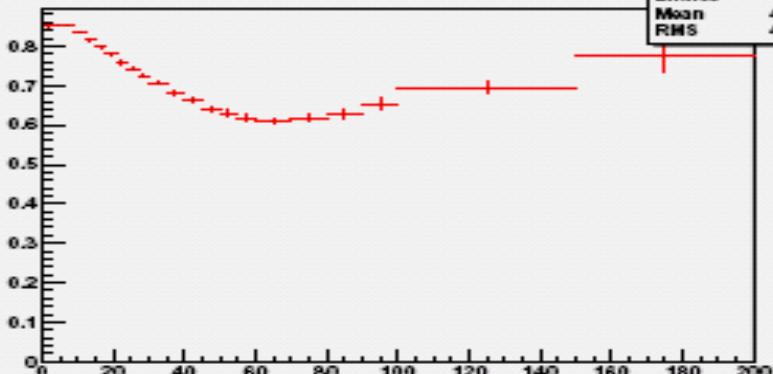
- Efficiency and acceptance measurement
 $(\varepsilon^* A)$
- Backgrounds measurement
- Unfolding
- Luminosity

Uncertainty estimation for $\varepsilon^* A$

- 9 million $Z/\gamma^* \rightarrow ee$ events generated using Pythia with CTEQ6 PDF.
- Using fast Monte Carlo wz_epmcs, electrons are smeared, efficiencies and event selection are applied.
- $\varepsilon^* A(Z_pT) = Z_pT(\text{Reco}) / Z_pT(\text{smeared})$
- Uncertainty on $\varepsilon^* A$:
- Smearing parameters
- Efficiencies
- PDF

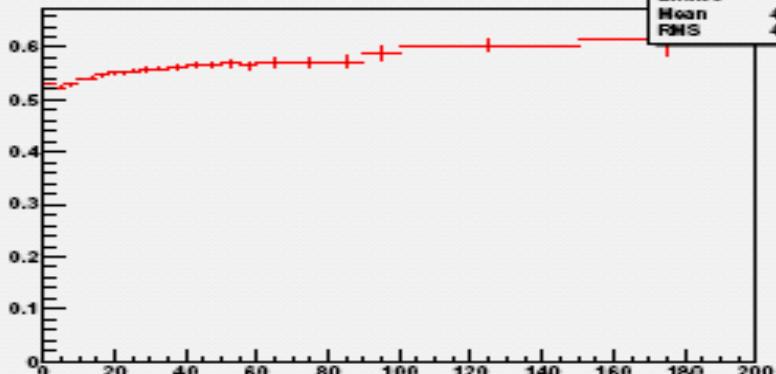
ept cut effect on acceptance as a function of Z pT

Entries	24
Mean	44.94
RMS	42.88



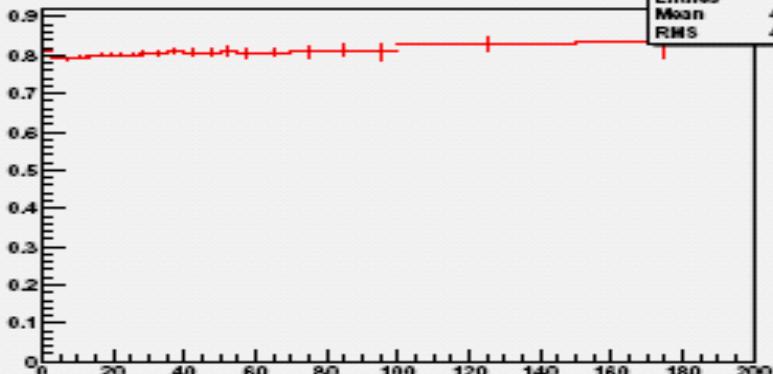
eta cut effect on acceptance as a function of Z pT

Entries	24
Mean	48.83
RMS	42.86



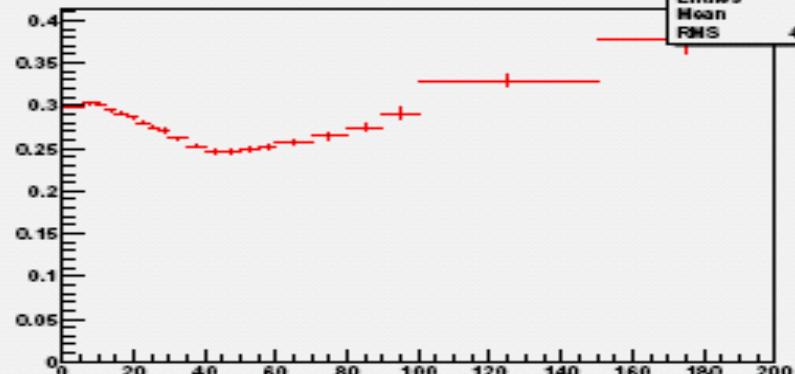
bad cal cut effect on acceptance as a function of Z pT

Entries	24
Mean	47.74
RMS	42.35



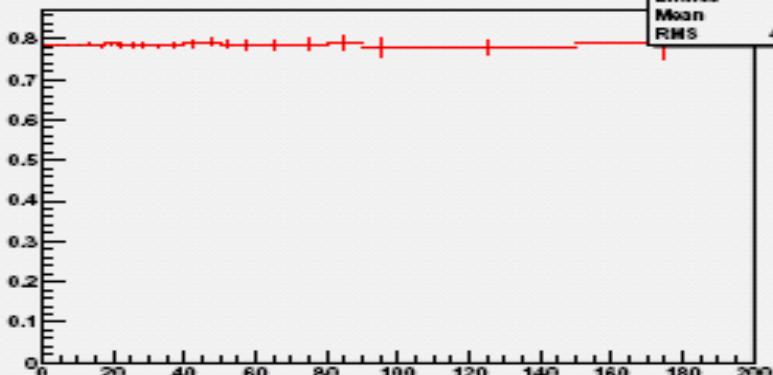
all acc cuts effect on acceptance as a function of Z pT

Entries	24
Mean	49.2
RMS	45.58



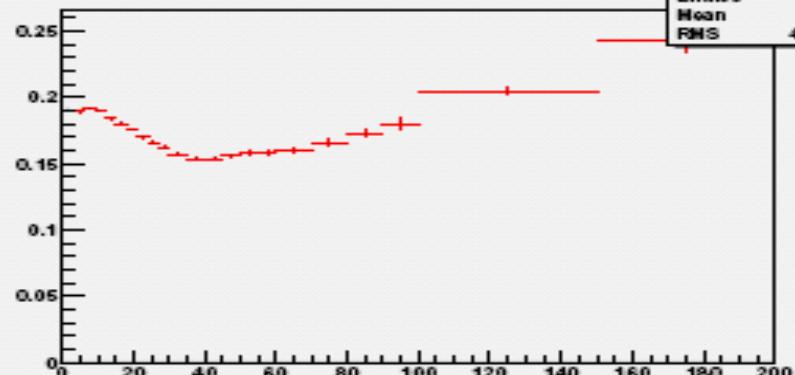
all effects effect on acceptance as a function of Z pT

Entries	24
Mean	47.3
RMS	42.02



overall(acc*off) acceptance as a function of Z pT

Entries	24
Mean	49.5
RMS	45.97

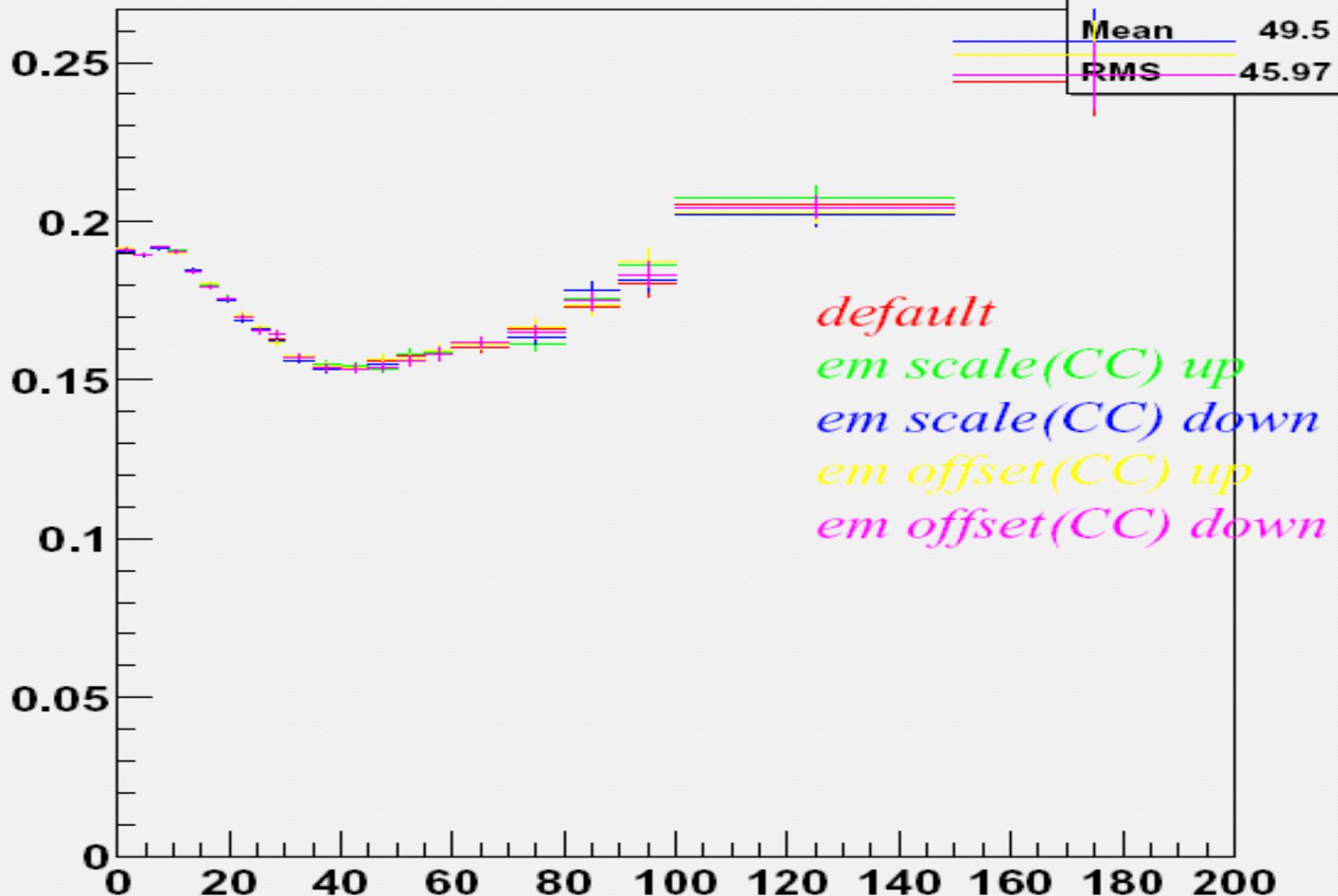


Uncertainty on $\varepsilon^* A$ due to smearing parameters

	Value	$\varepsilon^* A$ Change (up 1σ)	$\varepsilon^* A$ Change (down 1σ)
EM scale(CC)	$1.0054 +/- 0.0020$		
EM offset(CC)	$0.0384 +/- 0.048$		
EM constant(CC)	$(4.20 +/- 0.30)\%$		
Phi resolution(CC)	$0.0070 +/- 0.0034$		
Eta resolution(CC)	$0.0073 +/- 0.0035$		

overall(acc*eff) acceptance as a function of Z pT

overall(pT)
Entries 24
Mean 49.5
RMS 45.97



overall(acc*eff) acceptance as a function of Z pT

overall(pT)	
Entries	24
Mean	49.5
RMS	45.97

